

WHAT IS CLAIMED IS:

1. A silicon etching apparatus using XeF_2 , comprising:
a basic structure composed of a loading chamber for loading XeF_2 , an expansion
5 chamber for collecting sublimated XeF_2 gas, and an etching chamber for performing an
etching process; and
a means for injecting nitrogen prior to the etching process to eliminate air moisture
in the apparatus and thus preventing the formation of HF.
- 10 2. The silicon etching apparatus using XeF_2 as claimed in claim 1, further
comprising an injector having a predefined shape provided in the etching chamber for
uniformly injecting the XeF_2 gas on the surface of a wafer with a viscous laminar downflow.
- 15 3. The silicon etching apparatus using XeF_2 as claimed in claim 1, further
comprising a means for feedback controlling the internal pressure of the loading chamber.
4. The silicon etching apparatus using XeF_2 as claimed in claim 1, further
comprising a means for measuring the weight of XeF_2 in the loading chamber.